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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,047	07/31/2001	Ramesh Nagarajan	14-11	4255
30594	7590	01/26/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C.			CURS, NATHAN M	
P.O. BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2633	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/919,047	Applicant(s) NAGARAJAN ET AL.	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 6, 7, 10, 11, 17 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, regarding the applicant's claim language "receiving a connection setup message, sent from an upstream node at the adjacent node before the cross-connect may be completed", the applicant's specification does not provide a disclosure of receiving a connection setup message, sent from an upstream node at the adjacent node before the cross-connect is completed or before the cross-connect may be completed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 6, 7, 10, 11, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claims 1, 6, 7, 10, 11, 17 and 18, the word "may" renders the claim indefinite because it is unclear whether the limitation(s) following the word are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-7, 9-15, 17 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037).

Regarding claim 1, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: initiating a cross-connect with an adjacent node; receiving a connection setup message, sent from an upstream node at the adjacent node before the cross-connect may be completed; and completing the cross-connect with the adjacent node without waiting for completion of any downstream cross-connects (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 2, Wei et al. disclose the method according to claim 1, further comprising the step of sending the connection setup message to the adjacent node before completion of the cross-connect (page 2023, col. 2, lines 2-17).

Regarding claim 3, Wei et al. disclose the method according to claim 1, wherein the network is an optical transport network (page 2019, Abstract).

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Regarding claim 4, Wei et al. disclose the method according to claim 3, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

Regarding claim 5, Wei et al. disclose the method according to claim 1, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 6, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the connection setup comprising a forward pass of signaling messages from the source node to the destination node and a reverse pass of signaling messages from the destination node to the source node, the method comprising the steps of: initiating a cross-connect with an adjacent node on the forward pass of the connection setup; and receiving a connection setup message, sent from an upstream node at the adjacent node before the cross-connect may be completed; and checking if the cross-connect was successful on the reverse pass of the connection setup (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the SETUP signal initiates a cross-connect on the forward pass and the CONNECT signal, sent on the reverse pass, confirms the cross-connect was successful.

Regarding claim 7, Wei et al. disclose the method according to claim 6, wherein the forward pass and reverse pass of signaling messages occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 9, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: receiving a connection setup message sent from an upstream node before a cross-connect at the upstream node may be completed; and performing a cross-connect with a downstream node prior to receipt of a signaling message related to a status of at least one

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cross-connect operation performed at a downstream node (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 10, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: receiving a connection setup message sent from an upstream node before a cross-connect at the upstream node may be completed; responsive to the received connection setup message, executing a cross-connect with a downstream node; and sending a connection setup message to the downstream node, whereby a cross-connect at the downstream node is initiated (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 11, Wei et al. disclose apparatus comprising: a communications interface for providing signaling to a downstream node and for receiving signaling from an upstream node; and a processor, responsive to receipt of a connection setup message sent from the upstream node before a cross-connect at the upstream node may be completed, for performing a cross-connect with the downstream node prior to receipt of a signaling message from the downstream node related to a status of at least other cross-connect operation related to the connection setup (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor.

Regarding claim 12, Wei et al. disclose the apparatus according to claim 11, wherein the upstream node and the downstream node are in an optical transport network (page 2019, Abstract).

Regarding claim 13, Wei et al. disclose the apparatus according to claim 12, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

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Regarding claim 14, Wei et al. disclose the apparatus according to claim 11, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 15, Wei et al. disclose the apparatus according to claim 11, wherein the signaling occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 17, Wei et al. disclose apparatus comprising: a communications interface for receiving signaling sent from an upstream node before a cross-connect at the upstream node may be completed on a forward pass of a connection setup and receiving signaling from a downstream node on a reverse pass of the connection setup; and a processor for initiating a cross-connect with the downstream node on the forward pass, and for checking if the cross-connect was successful on the reverse pass (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor, and where the SETUP signal initiates a cross-connect on the forward pass and the CONNECT signal, sent on the reverse pass, confirms the cross-connect was successful.

Regarding claim 18, Wei et al. disclose apparatus comprising: a communications interface for receiving a connection setup message sent from an upstream node before a cross-connect at the upstream node may be completed; and a processor for executing a cross-connect with a downstream node and for sending, through the communications interface, a connection setup message to the downstream node, whereby a cross-connect at the downstream node is initiated (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor and communications interface.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037) in view of Qiao et al. ("Just-Enough-Time (JET): a high speed protocol for bursty traffic in optical networks"; Qiao et al.; Technologies for a Global Information Infrastructure, 1997 Digest of the IEEE/LEOS Summer Topical Meetings, 11-15 Aug. 1997, Pages 26-27).

Regarding claims 8 and 16, Wei et al. disclose the method and apparatus according to claims 6 and 16, respectively, and disclose forward pass and reverse pass of signaling (page 2028, col. 2, line 15 to page 2029, col. 1, line 28). Wei et al. also discussing in-band signaling (page 2021, col. 2, lines 11-17 and page 2022, col. 1, lines 9-21), but do not elaborate on in-band signaling in their example of JIT signaling. Qiao et al. disclose an implementation of JIT signaling using in-band signaling (page 26, section 2), where the Qiao et al. system is not a WDM system and thus the signaling is in-band (in the same wavelength). It would have been obvious to one of ordinary skill in the art at the time of the invention that the JIT system of Wei et al. could alternately function using in-band signaling, as taught by Qiao et al., in order to provide packet-switching-like JIT signaling, with the traffic burst durations and optical buffers optimally matched to avoid dropped bursts, to provide the advantage of the short setup time achievable when the control information travels on the same wavelength as the data (i.e. the signaling for one path not requiring setup time for multiple wavelengths).

Response to Arguments

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9. Applicant's arguments filed 20 August 2004 have been fully considered but they are not persuasive.

Regarding claims 1-7, 9-15, 17 and 18, the applicant argues that Wei does not disclose or suggest the receipt of a set-up message before an upstream cross-connect may be completed. However, as described above for the 112-2nd paragraph rejections, the applicant does not disclose the receipt of a set-up message before an upstream cross-connect is completed or may be completed. Therefore the argument is not persuasive. In addition, Wei discloses initiating an initial cross-connect setup ("issuing a command to the fabric controller") while forwarding the setup message (page 2029 col. 1, see also page 2023, col. 2). Issuing a setup command to a cross-connect is not the same as waiting for the cross-connect to complete switching. Further, this disclosure is the same as the applicant's disclosure of initiating a cross-connect setup while forwarding the setup message (specification page 6, lines 14-20).

Regarding claims 8 and 16, the applicant argues that the combination of Wei and Qiao would either render one or both of the references unsatisfactory for their intended purposes or require that the principle of operation of one or both of the references be changed. This argument is not persuasive because there is sufficient motivation to combine Wei and Qiao. Wei only discloses the case of in-band signally where the packet header and data packets travel without any delay between them, and thus require buffers at each node for buffering the data while the header is being processed since the header and data are transmitted without delay between them (page 2021, col. 2). However, the Wei system is a WDM system and the disclosed out-of-band signaling comprises separating control signaling electronics from the transparent optical data path (page 2020, col. 1, lines 37-53). The difference between Wei's novel out-of-band approach and the conventional packet switching art has two parts; one, that the control signal electronics are separate from the transparent data path (page 2020, col. 1,

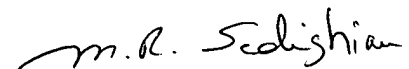
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lines 37-53) and two, that a buffer is only needed at the source node (page 2023, col. 1). Qiao discloses a non-WDM JIT implementation of using a delay between the control signal and the data signal. Since the Qiao system is not a WDM system, the control signal and data travel on the same wavelength. Both Wei and Qiao teach a delay between the control signal and the data, and since Qiao's system is a single wavelength system, it would have been obvious to one of ordinary skill in the art at the time of the invention that the system of Wei could be implemented with in-band control signaling on each wavelength. Although this combination would result in the control signal electronics being associated with the same wavelength as the data in the system of Wei, this combination would not render Wei unsatisfactory for its intended purpose of eliminating buffering at intermediate nodes and would provide the advantage of the short setup time achievable when the control information travels on the same wavelength as the data (i.e. the signaling for one path not requiring setup time for multiple wavelengths).

Conclusion

10. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.


M. R. SEDIGHIAN
PRIMARY EXAMINER